

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended)

A stack, comprising:

a plurality of fuel cells;

a plurality of cooling devices;

a cooling fluid; and

a plurality of metal bipolar plates and gaskets having passage openings for feeding a reactant gas, for extracting a residual gas, and for injecting and discharging a cooling fluid,

wherein each fuel cell comprises an ion-exchange membrane with two sides, a current collector on each side of the membrane, and the gasket framing the perimeter of the current collector, and

each cooling device comprises an electrically conductive spacer and the cooling fluid flows through the cooling device, and

each fuel cell is delimited by a pair of bipolar plates, and

the cooling fluid is separated from the ion-exchange membrane,

wherein the bipolar plate closest to the negative terminal is free of openings for fluid passage.

2. (Cancelled)

3. (Cancelled)

4. (Previously presented) The stack of claim 1, wherein the construction material of the metal bipolar plates is stainless steel containing 16-26% chromium, 10-22% nickel, and optionally molybdenum.

5. (Previously presented) The stack of claim 4, wherein said stainless steel is selected from AISI 316L or the steels of the CrNi 2520 series according to DIN.

6. (Previously presented) The stack of claim 1, wherein the cooling fluid is demineralised water circulating in a closed circuit.

7. (Previously presented) The stack of claim 1, wherein the perimeter of the ion-exchange membrane is located in an intermediate region between the boundary of the center hollow portion in the gasket and the circumference of the passage openings.

8. (Previously presented) The stack of claim 7, wherein the ion-exchange membrane is isolated from the cooling fluid by sealing elements selected from ridges or rings located in said intermediate region.

9. (Previously presented) The stack of claim 1, wherein the ion-exchange membrane is provided with passage hole aligned with the passage openings in the gasket and being larger in size than said openings; the ion-exchange membrane is

further isolated from the cooling fluid by sealing elements selected from ridges or non-conductive material in the form of planar gaskets or O-rings located between the edges of said passage holes in the membrane and the passage openings in the gaskets.

10. (Previously presented)The stack of claim 9, wherein said non conductive material is a low hardness rubber selected from EPM or EPDM.

11. (Previously presented)The stack of claim 9, wherein said non conductive material is applied in liquid form when assembling the stack and polymerized with a catalyst contained in the liquid, or cured by UV irradiation or thermal treatment.

12. (Previously presented)The stack of claim 11, wherein said non conductive material is provided with elasticity and reduced hardness after polymerization or curing.

13. (Previously presented)The stack of claim 12 wherein said liquid is a silicon resin-based polymerizable material.

14. (Cancelled)